

Date: Mon, 1 Mar 93 20:37:19 PST
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #273
To: Info-Hams

Info-Hams Digest Mon, 1 Mar 93 Volume 93 : Issue 273

Today's Topics:

 Advise on what TNC to buy
 Amplifier Tuning
Announcement - ARRL Information Mail Server (info@arrl.org)
Daily Solar Geophysical Data Broadcast for 01 March
Gain equations for pyramidal horn antennas
Ground planes and vertical dipoles (4 msgs)
Help! TVI in touch on lamps.
How about a J-wire for HF? (2 msgs)
QSL HELP PLEASE
Soldering PL259's
too darn big!

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 2 Mar 93 02:50:08 GMT
From: usc!howland.reston.ans.net!spool.mu.edu!uwm.edu!logicse!clark!
thrain.vancouver.wsu.edu!day@network.UCSD.EDU
Subject: Advise on what TNC to buy
To: info-hams@ucsd.edu

I'm getting ready to buy a tnc and would like to know what people think
about the AEA PK-232, Kantronics KAM, and the Data Engin. I'm
interested in easy of use, flexibility, performance, and expandability.
I'll be using the tnc on a Mac IIsi so I would also like to know about
software that is available, either from the manufacturer or third party.

Currently my interests are primarily in packet, but I would like to be able to use the other modes as well.

Please respond by e-mail.

Thank you.

--

Steve Day | This signature made with
N7VHY | 75% recycled pixels

Date: Mon, 1 Mar 1993 20:41:22 GMT
From: usc!sdd.hp.com!hpscit.sc.hp.com!hplextra!hpl-opus!hpnmdla!
alanb@network.UCSD.EDU
Subject: Amplifier Tuning
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, lwwald@lims01.lerc.nasa.gov (LARRY WALD) writes:

>Once again I will pose a question to all the knowledgeable netters out
>there!! (Incidentally, thanks to all who responded on my last amplifier
>question). The current question deals with PI network tuning on my SB-200;

>on 80 and 40 I can't get the "Load" capacitor to peak the power output. It
>loads such that I have the setting at one end of the capacitors travel. I
>have talked to another friend of mine who had the same trouble with his SB-
>200. On 80 and 40 I am getting about 550-575 watts out with 100 watts in,
>which is low for this amp. The tubes are new, BTW. Any suggestions??

>BTW, please respond only if you have any brain cells

Not sure if I qualify or not... :=)

>regarding amplifiers,
>as we all know this newsgroup has too much traffic as it is!!

On the lower-frequency bands the loading control has limited range.
If the antenna SWR is not low enough, you may not be able to tune up
for optimum power output.

AL N1AL

Date: Mon, 1 Mar 1993 08:27:02 MST

From: elroy.jpl.nasa.gov!swrinde!gatech!destroyer!cs.ubc.ca!unixg.ubc.ca!
kakwa.ucs.ualberta.ca!alberta!adec23!ve6mgs!rec-radio-info@ames.arpa
Subject: Announcement - ARRL Information Mail Server (info@arrl.org)
To: info-hams@ucsd.edu

The American Radio Relay League (ARRL) has a useful service -- the ARRL Information Mail Server. This is an automated mail server that let's you access many of our information files, containing information about various facets of Amateur Radio. You can retrieve any or all of these files by sending an email message to info@arrl.org here at ARRL HQ. Each file you request is then mailed to you automatically, usually within a few hours.

To use it, mail messages to:

info@arrl.org

Each line of the message should contain a command as shown below. You may place as many commands in a message as you want. Each file you request will be sent to you in a separate message. Only ASCII text files are supported at present.

Valid INFO commands:

help	Sends the help file
index	Sends an index of the files available from INFO
send FILENAME	Sends "FILENAME" example: send prospect
quit	Terminates the transaction

Note: your message will *not* be read by a human! Do not include any requests or questions except by way of the above commands. Retrieve the EMAIL file for a list of addresses of ARRL HQ staff.

Note: Your From: or Reply-to: line MUST contain a valid internet address. Local address (like ehare@arrl) won't work. If you don't get a response, tack your internet address on the end of your text. I will usually be able to get mail to you.

73 de ARRL HQ, Ed Hare, KA1CV, ehare@arrl.org

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Sample of files available from INFO: (There are lots more!)

FILENAME	SIZE	DATE	DESCRIPTION
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#Note - If you are not yet an Amateur Radio operator retrieve the
#file prospect (send prospect) for information on how to easily get
#started in this fun hobby.

PROSPECT	2k	921203	How to get your Amateur Radio license
EXAM-SCHEDULE	40k	921201	Current exam schedule info - updated bi-weekly
EXAM-INFO	9k	921020	Examinations - what to bring - requirements
EMAIL	5k	921201	List of HQ Email addresses
ADDRESSES	16k	921203	Lots and lots of ham/electronic company addresses
BIOEFFECTS	29k	921203	Information about RF safety
EMI-GEN	37k	921203	How to solve an EMI/RFI problem - QST Lab Notes
EMI-SOURCE	13k	921203	Where to buy filters - EMI-proof telephones etc.
KITS	5k	921203	List of companies that sell kits
PARTS-SOURCE	2k	921203	List of companies that sell electronic parts
PRODUCT-REVIEW	45k	921203	Bibliography of QST Product Reviews (large file)
SOFTWARE	12k	921203	Where to find ham-radio software - QST Lab Notes
BBS	33k	921203	List of ham-radio land-line bulletin boards
FTP-INFO	5k	921203	How to ftp - a list of a few 'hammy' ftp sites
PUBLICITY-HAM	9k	921203	Public-relations info about Amateur Radio - media
FAQ-1	22k	921203	Introduction to the FAQ and Amateur Radio
FAQ-2	39k	921203	Amateur Radio Organizations Services and Info
FAQ-3	31k	921203	Amateur Radio Advanced and Technical Questions

N

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 American Radio Relay League
 225 Main St.
 Newington, CT 06111
 (203) 666-1541 - voice
 ARRL Laboratory Supervisor
 RFI, xmtr and rcvr testing

ehare@arrl.org

You will never put the puzzle together
 if you keep putting all the pieces
 back in the box.

 Date: 2 Mar 93 03:42:00 GMT
 From: news-mail-gateway@ucsd.edu
 Subject: Daily Solar Geophysical Data Broadcast for 01 March
 To: info-hams@ucsd.edu

!!BEGIN!! (1.0) S.T.D. Solar Geophysical Data Broadcast for DAY 060, 03/01/93
 10.7 FLUX=132.0 90-AVG=134 SSN=141 BKI=2124 4322 BAI=012
 BGND-XRAY=B4.5 FLU1=6.2E+05 FLU10=1.5E+04 PKI=2224 5333 PAI=016
 BOU-DEV=000,007,019,056,060,033,014,012 DEV-AVG=025 NT SWF=00:000
 XRAY-MAX= C3.9 @ 1654UT XRAY-MIN= B2.6 @ 0151UT XRAY-AVG= B6.6
 NEUTN-MAX= +002% @ 2335UT NEUTN-MIN= -003% @ 1910UT NEUTN-AVG= -0.6%
 PCA-MAX= +0.2DB @ 1800UT PCA-MIN= -0.5DB @ 1920UT PCA-AVG= +0.0DB
 BOUTF-MAX=55404NT @ 1157UT BOUTF-MIN=55369NT @ 1814UT BOUTF-AVG=55394NT
 GOES7-MAX=P:+114NT@ 2024UT GOES7-MIN=N:-029NT@ 0911UT G7-AVG=+078,+033,+008
 GOES6-MAX=P:+125NT@ 1644UT GOES6-MIN=E:-005NT@ 1812UT G6-AVG=+091,+014,+043
 FLUXFCST=STD:135,140,145;SESC:135,140,145 BAI/PAI-FCST=015,015,010/018,012,010
 KFCST=3324 5233 3214 4011 27DAY-AP=015,009 27DAY-KP=4433 3332 2322 2233

WARNINGS=
ALERTS=
!!END-DATA!!

Date: Mon, 1 Mar 1993 19:38:42 GMT
From: usc!sdd.hp.com!hpscit.sc.hp.com!hplextra!hpl-opus!hpnmdla!
alanb@network.UCSD.EDU
Subject: Gain equations for pyramidal horn antennas
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, alanb@hpnmdla.sr.hp.com (Alan Bloom) writes:

>In rec.radio.amateur.misc, cromwell@sclera.ecn.purdue.edu (Bob Cromwell) writes:

>>I'm looking for an equation to provide the gain of a pyramidal horn.

>I think the physical aperture of the horn is approximately equal to the
>electrical aperture or "capture area." If so, then the gain would be

> Gain = Aperture (in square wavelengths) * 4 PI

>If the horn mouth were 1 wavelength high and 1 wavelength wide, then
>the gain would be 4 PI = 12.57 or 11 dB over isotropic, 8.85 dB
>over a dipole.

I have been told that the aperture efficiency of a horn antenna runs
around 50-60%. If you multiply the above equation by .55, you should
be very close to the right answer.

AL N1AL

Date: Mon, 1 Mar 1993 20:27:19 GMT
From: usc!sdd.hp.com!hpscit.sc.hp.com!hplextra!hpl-opus!hpnmdla!
alanb@network.UCSD.EDU
Subject: Ground planes and vertical dipoles
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, gary@ke4zv.uucp (Gary Coffman) writes:

> To outlet
> | +-----+
> | +---+ 3 wire | |
> To +---| |-----| |
>Ant =====| | Radio |

```

>      +--+      |      |
>      |          |      |
>      | Lightning +-----+
>      | arrestor
>      |
>      -----
>      ---
>      -

```

>This is common point grounding. The 3rd wire ground is attached to station
>ground and continued to the power box ground. Now there can't be a ground
>loop through your equipment because all cables are at equal potential at
>the common point.

If the power box is grounded, than the radio is grounded through the
third wire in the power cord. You still have a "ground loop".

By the way, I assume this is why the Alpha Delta brand lightning
arrestors isolate the coax shield from the ground connection.
(Presumably the arresting action is to connect the shield to ground
in the event of a lightning strike.) Anybody know if this is the case?

AL N1AL

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Date: Mon, 1 Mar 1993 19:43:51 GMT
From: usc!sdd.hp.com!hpscit.sc.hp.com!hplextra!hpl-opus!hpnmdla!
alanb@network.UCSD.EDU
Subject: Ground planes and vertical dipoles
To: info-hams@ucsd.edu

```

In rec.radio.amateur.misc, greg@core.rose.hp.com (Greg Dolkas) writes:

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>Alan Bloom (alanb@hpnmdla.sr.hp.com) wrote:
>:
>: The moral of the story is: use a 3-wire plug on your ham equipment
>: to safety-ground the chassis. Do not depend on a separate earth
>: ground. The tower/coax should be grounded to earth ground at some
>: point before the coax enters the house (for lightning protection).
>:

```

>If you have both an earth ground (at the lightning arrestor) and a 3-wire
>plug safety ground at the transceiver, couldn't you get quite a ground loop
>current going with a non-ground-potential safety ground? I expect that
>would at least cause your ground rod to dissolve with electrolytic action,
>not to mention the safety issue.

I don't know why a ground loop per se would cause current to flow in the ground loop. This would only happen if there were a voltage difference between the ground rod and the house electrical system ground.

During a lightning strike, there CAN be a potential difference due to the large lightning currents flowing in the ground. I still think you are better off earth-grounding the coax BEFORE it enters the house. And you do not want to disable the third-wire protection of the AC plug. I will discuss this further in my reply to Gary's memo in this same string.

AL N1AL

Date: Mon, 1 Mar 1993 20:22:28 GMT
From: usc!sdd.hp.com!hpscit.sc.hp.com!hplextra!hpl-opus!hpnmdla!
alanb@network.UCSD.EDU
Subject: Ground planes and vertical dipoles
To: info-hams@ucsd.edu

Gary wrote:

>In the Hustler design, they used a hollow mast to conduct the coax to
>the center of the antenna. This, of course, completely shielded the
>coax from the near field and supplied mechanical support to the antenna,
>but the mast could then become the unintended radiator. It's exposed
>at the minimum current node, however, and doesn't seem to be a problem. A
>toroid donut at that point should make it really clean, but I haven't
>noticed any real difference in performance with or without a toriod.

It doesn't matter whether or not the coax is "shielded" by a metal mast. As you noted, the unwanted current can flow on the mast just as easily as on the outside of the coax braid. How much common-mode current you get is a strong function of feedline (or mast) length.

Recently, WB6FRZ and I did some experiments with an HT suspended beneath a J-pole antenna that was hanging on a rope strung between John's tower and a wooden pole. (We also tested a conventional ground plane antenna for comparison.) We measured feedline currents with a small shielded loop connected through coax to a spectrum analyzer. Sure enough, we found if we used just the "wrong" length of coax to the HT (an odd multiple of a quarter wave) we got very strong currents. With even multiples of a quarter wave, currents were near zero. This happened with both the ground plane and with the J-pole, although it was about 10 dB (3x) worse with the J-pole.

If you think about it, it makes sense. We know that the antenna

return currents flow in the ground plane radials. These currents don't know the difference between a 1/4-wave radial and any other 1/4-wave length of metal attached to the coax shield at the feed point. The outside of the coax shield itself is such a piece of metal.

The cure was to wrap several turns of coax, just below the feedpoint, through a toroid from John's junk box. Using the toroid with the ground plane, feedline current was near zero for any feedline length. Results with the J-pole were not quite as good, but the toroid still helped a lot. We also tried just coiling the coax a few turns (with no toroid). This didn't work as well. With both antennas, we could still find a feedline length that caused considerable common-mode current to flow.

AL N1AL

Date: Mon, 1 Mar 1993 20:01:10 GMT
From: usc!sdd.hp.com!hpscit.sc.hp.com!hplextra!hpl-opus!hpnmdla!
alanb@network.UCSD.EDU
Subject: Ground planes and vertical dipoles
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, gary@ke4zv.uucp (Gary Coffman) writes:

I wrote:

>>Awhile back I found to my surprise that power company ground and earth
>>ground can be very different when things aren't working right.
>>To make a very long story short, my house had about 60 volts AC on the
>>"safety" ground and neutral wires EVEN WITH THE HOUSE MAIN BREAKER
>>PULLED! After considerable investigative work, it turned out a
>>neighbor, on the same pole transformer, had a defective 220V well
>>pump. One side of the 220 line was shorted to the pump housing which
>>was well-grounded to earth. In effect, the "ground" reference of
>>the pole transformer was about halfway between center tap and one
>>end, instead of at the center tap where it should be. I could get
>>a big, fat spark (about 4A of current) by connecting a wire between
>>my fuse box chassis and a separate 8 ft ground rod.
>>

>>The moral of the story is: use a 3-wire plug on your ham equipment
>>to safety-ground the chassis. Do not depend on a separate earth
>>ground. The tower/coax should be grounded to earth ground at some
>>point before the coax enters the house (for lightning protection).

>No, actually the moral of this story is to make sure your service
>entrance wiring is in compliance with the NEC.

It was and is.

>...Sounds like your neighbor's box isn't grounded properly
>either or the fault should have blown the pump breaker in his
>panel.

Nope. His house was grounded. My house was grounded. And the pole transformer was grounded at the pole. Even after I added a SECOND 8-foot ground rod at the fusebox, I was still measuring about 50VAC between the box and a high-impedance voltmeter probe jammed into the dirt. I assume my neighbor had a 20A breaker on the pump. Let's further assume that the short was causing 15A of current. This implies that the total ground impedance was $R = E / I = 60V / 15A = 4 \text{ ohms}$. I believe this is well within NEC specs.

>There are two problems here, the potential shock hazard
>from the ground fault, and the fact that you and your neighbor
>have been paying the power company for that ground current draw.
>It's been passing through one or both of your meters for as long
>as the fault has been present.

His meter only. The power meter doesn't measure ground currents.

>Now using the third wire connection wouldn't solve this problem,
>it just generates another, a ground loop *through* your equipment
>from the floating neutral in your power box to the amateur RF ground
>system. That's bad, and potentially damaging to your equipment and
>you.

Huh? The "ground loop" exists whether the fault exists or not, since the system is grounded at multiple locations. The reason for using the 3-wire plug on all equipment is to ensure that all metal in the house is at the same potential. The safety problem occurs when you have one piece of metal grounded to house ground and another grounded to earth ground. If there is a potential difference between the two, you can get shocked if you touch both.

AL N1AL

Date: Tue, 2 Mar 1993 02:44:35 GMT
From: usc!howland.reston.ans.net!gatech!concert!unccsun.uncc.edu!ws50!
wlhamaty@network.UCSD.EDU
Subject: Help! TVI in touch on lamps.
To: info-hams@ucsd.edu

My touch lamp did the same thing. Seemed to be particularly sensitive to 40m.

It seemed likely that the thing was picking up directly. Looking at the lamp as an antenna, I concluded that there was no way to make the thing NOT act like an antenna, so I took the touch gizmo off. Problem solved! My wife doesn't like the solution though, so any suggestions would be appreciated.

```
[-----]
| Luke Hamaty KQ40Q           "More than gold, I love to complain." |
| Impact Technologies Group - Trurl, from The Cyberiad             |
| |                                                                    |
| 800-438-6017 or 704-549-1100                                     |
[-----]
```

Date: Tue, 2 Mar 1993 02:39:37 GMT
From: usc!howland.reston.ans.net!gatech!concert!unccsun.uncc.edu!ws50!
wlhamaty@network.UCSD.EDU
Subject: How about a J-wire for HF?
To: info-hams@ucsd.edu

In article A22824@sceng.ub.com, thorburn@sceng.UB.COM (Thorburn_Gary) writes:
There's been lots of talk about the sleeved dipole and j-pole recently in this forum. I've often wished for an end-fed or off-center fed HF wire antenna, but stayed away from them because I hear that their poorly-balanced design results in RF coming back down the coax.

Maybe we could "test" this idea by diatribe here on the forum before I actually build one: How about extending the j-pole design to a wire antenna for HF (say, 30m) constructed of a wire "pole", and some 450-ohm ladderline for the "J". It would be fed at the appropriate point on the ladder line by a balun, and coax to the rig.

This would be an off-center fed "sloper" hoisted up into a tree. Its advantage is that it's fed from the more convenient lower end of the slope.

-- Gary KB1AIF thorburn@sceng.ub.com

This is really just a variation of an end-fed Zepp. Youv'e got a 1/2 wave radiator fed by a quarter wave matching stub. The J-pole is the same thing, except that most people feed match small ones by moving the feed pojnt up the matching stub. There are versions of the J where the end is not shorted and the antenna is tuned by adjusting the length of the stub, which

is just a vertical Zepp.

I wouldn't think feedline radiation would be a big problem, especially with a balun. A 1:1 choke balun would probably work fine. It might work a little better as in inverted L. Unless I am mistaken, it would radiate mostly from the center, and an L would maybe elevate that a bit better. Not that I am any kind of expert on the subject..

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[-----]
| Luke Hamaty KQ40Q           "More than gold, I love to complain." |
| Impact Technologies Group - Trurl, from The Cyberiad             |
|                               |                                     |
| 800-438-6017 or 704-549-1100                                     |
[-----]
```

Date: Tue, 2 Mar 1993 02:57:41 GMT
From: usc!zaphod.mps.ohio-state.edu!rpi!rs6314.ecs.rpi.edu!maessm@network.UCSD.EDU
Subject: How about a J-wire for HF?
To: info-hams@ucsd.edu

In article <9303011310.A22824@sceng.ub.com>, thorburn@sceng.UB.COM (Thorburn_Gary) writes:

```
|>      Maybe we could "test" this idea by diatribe here on the
|>      forum before I actually build one:  How about extending the
|>      j-pole design to a wire antenna for HF (say, 30m)
|>      constructed of a wire "pole", and some 450-ohm ladderline
|>      for the "J".  It would be fed at the appropriate point on
|>      the ladder line by a balun, and coax to the rig.
```

I have built a 10-meter J-pole out of 450-ohm ladderline and wire. I strung it up in a tree with the top end about 25 feet high and the base a few inches off the ground. The SWR was below 1.6:1 over 28.000-28.800 Mhz. It got out about as well as the dipole I had strung up at about the same height as the top of the J-pole.

The design works fine, but it is significantly taller than an equivalent 1/4 wave or a vertical 1/2 wave dipole.

--
Mat Maessen N2NJZ | maessm@rpi.edu

----- +-----
The opinions expressed in this message definitely do NOT reflect the views of RPI, Roland Schmitt, or BAPP

(c) 1993 Fake-sig Co., Inc.

Date: 2 Mar 93 02:22:22 GMT
From: usc!howland.reston.ans.net!spool.mu.edu!hri.com!noc.near.net!genrad.com!
genrad.com!not-for-mail@network.UCSD.EDU
Subject: QSL HELP PLEASE
To: info-hams@ucsd.edu

QSL V31RL via NG7S

73 Trevor G3WQO AB5EU

Date: Mon, 1 Mar 1993 19:36:04 GMT
From: usc!sdd.hp.com!hpscit.sc.hp.com!hplextra!hpl-opus!hpnmdla!
alanb@network.UCSD.EDU
Subject: Soldering PL259's
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, brian@ucsd.edu (Brian Kantor) writes:

>When I have 9913 into a PL259 outdoors, I first fill the end of the
>coax with silicone vacuum seal grease, available at all scientific
>supply stores. This will prevent water from getting into the center of
>the coax, I hope.

Sounds like this would work, but it will upset the impedance of the
coax. (Similar to the "impedance bump" you get with UHF connectors.)
Shouldn't be a problem at VHF and below, but I wouldn't do it on the
microwave bands.

AL N1AL

Date: Tue, 2 Mar 1993 00:36:57 GMT
From: usc!cs.utexas.edu!convex!constellation!osuunx.ucc.okstate.edu!olesun!
gcouger@network.UCSD.EDU
Subject: too darn big!
To: info-hams@ucsd.edu

One thing I can see that would help is, if rec.radio.info is available
to every one, is to put all the things like Solar forecast, ARRL bullitins,
Space News over there and not cross post them here. rec.radio.info is very
well structured and IMHO the place for structured things. This group has
very little structure and I like it that way. I am not, or only occasionally

interested in DX reports ARRL reports and such. When I want them I know where to find them.

IMHO putting these reoccurring intems in rec.radio.info would make both groups less cluttered in the case of this group and more used in the case of rec.radio.info.

Gordon AB5Dg
Gordon Couger
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End of Info-Hams Digest V93 #273
